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ABSTRACT

The introduction of computer technology into social science education in elementary and secondary schools in England stands to inhibit some of the positive developments in these subjects in recent years. Currently, objectives of social science education for the multicultural society in Britain are the enhancement of respect for self and of respect for others. The Inner London Education Authority has sponsored educational programs to promote peace, reduce racism, and increase the toleration of homosexuals. Women's studies and religious studies are further examples of this trend. Classroom methods foster a pluralism of values, beliefs, and strategies. However, the use of computers in the social sciences has created shifts in objectives and contents from affective and qualitative to cognitive and quantitative. The content of subject matter has been rearranged to that which is teachable by computers. Further, the introduction of this new technology is premised not on educational considerations but upon economic perceptions. It is a campaign sponsored outside the world of education and market interests are dominant. What purports to be research on the educational uses of the new technology lacks intellectual rigor and is seldom conducted on an independent basis. Most serious of all, the pedagogy of computer instruction (the omniscience of the microcomputer and its ability to answer questions) is outdated in social science education. (KC)

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SOCIAL SCIENCE EDUCATION CONSORTIUM

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New Technology: Servant or Master of Social Science Education?

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1. INTRODUCTION

In a recent letter to The Times (29 March 1983) the Chief Education Officer of Sheffield dismissed the opponents of microtechnology across the curriculum as 'a few unregenerate, Bourbon-like defenders of a lopsided and inadequate view of culture': this paper is an apology on their behalf.

Unregenerate they may be but few in number they are not. It is still the case in Britain that computing skills are confined to a narrow range of curriculum subjects, within which social studies and political education barely feature. According to an enquiry conducted in March 1980 'very few primary schools in England had the use of a microcomputer and these schools were scattered throughout the country'(Jones 1980: 61). And a survey carried out last summer by the School Broadcasting Council showed that in schools for children aged 11 or 12 and above 94% of mathematics and computing science departments, 23% of geography departments and 10% of economics departments had staff competent to use a microcomputer but in other subjects the figures were negligible (Hodges 1983).

The campaign to install the new technology in schools has been an initiative from central government and the measure of public finance appropriated to it has been calculated to overcome the whims and expenditure preferences of the Bourbons. In October 1982 the Department of Industry - not the Department of Education, be it noted - launched a £9 million scheme to put a micro-computer in every primary school in the country: under a similar scheme costed at £3 millions, half-price hardware had already been provided in 5,500 secondary schools. The Micro-electronics Education Programme of the Department of Education and Science is funded to the extent of £9 millions over a three-year period and the Inner London Education Authority, serving only schools in central London, has a £2.1 million scheme to expand computer education which has been running since 1981 (O'Connor 1982). These figures, it has to be said, are high by the standards of educational budgets in Britain, and to them must be added the contributions of schools: the standard arrangement is to offer schools half the cost of provision and this is found to be an effective inducement to purchase; but schools must meet the other half from their domestic budgets and to that extent existing resources are pre-empted.

2. THE STATE OF SOCIAL SCIENCE EDUCATION

It is instructive to review the rationale of social and political education as developed in innocence, as it were, of the potential contribution of the new technology. It is not feasible to do this as an objective survey of currents in content, methods and objectives but it is possible and useful to take the odd sounding here and there in order to identify trends.

The notion of literacy and in particular of political literacy, as conceived by Graeme Moodie and nurtured by Bernard Crick (Crick and Heater 1977: 179), has been normative in the specification of objectives in recent years. The politically literate student is distinguished by the development of attitudes, informed by knowledge, competent in skills and contrasted with what Crick dismissively calls 'punch-card and data men'. The concept of the literate as both informed and motivated recalls Marx's last thesis on Feuerbach:

> The politically literate person must be one who can use his knowledge, or at least see how it could be used and have a proclivity for using it; a pupil should be given opportunities for applying it, or the opportunities that they themselves seize should be analysed and aided. Equally, his or her desire to participate must be informed by as much knowledge of what he or she is going into and of what consequences are likely to follow from actions as is needed to make participation effective. All actions affect others, so he or she must be aware of what effect actions are likely to have, and then also to be able to justify them (Crick and Heater 1977: 179).

A specification of the values and attitudes that are appropriate to education for political literacy is offered by Crick in his paper 'Procedural values in political education' (Crick and Heater 1977: 113-24) and in Crick and Porter's Political Education and Political Literacy: further, these were variously enshrined in a Department of Education and Science paper on 'Political competence' written by Her Majesty's Inspectors R.A.G.Hennessey and J.G.Slater and circulated in 1977. In a democracy, it was suggested, the premise of political competence is the attitude of tolerance, not merely in the sense of passive acceptance but in the positive welcoming of diversity. In the resolution of conflicting interests the HMIs entertained the possible expedients of war, imprisonment and censorship but distinguished the acceptance of compromise as a political attitude appropriate to democratic society. And they commended open-mindedness, recalling the advice of Bertrand Russell:

> When you come to a point of view, maintain it with doubt. This doubt is precious because it suggests an open mind. I do not mean to argue that we should confuse an open mind with an empty mind.

The importance of the open mind has been all pervading in western educational thought and has affected most measurably the pedagogies of social studies, political education and religious education. At secondary school level the method of classroom discussion has been normative and its widespread use firmly based on the Piagetian wisdom (misguided though it may be) that abstract thought and the efflorescence of powers of reason are distinctive of the early teens. Much of the agenda of social studies - marriage, the family, work and unemployment, conflict, peace, arms, socialism, disadvantage, race, women, money, for examples - lends itself to lively debate: a lesson directed by discussion is foreclosed when consensus is achieved and so it is in the teacher's interests to avert agreements. It is axiomatic that the answer is less interesting than the question: the word 'problematic' has recently come into currency as an approving description of the approach to subject matter which keeps questions open. If a question is closed, if a problem is framed to allow only one resolution, it is barely worth exploring. What is being deliberately fostered, therefore, is a pluralism of values and beliefs and strategies. Such a pluralism is the way in which the virtue of tolerance works itself out in an increasingly multi-cultural society: what is expressed as desirable in relations within the community has implications in this way for pedagogy within the classroom. The free and open discussion of social problems maximizes student participation and interaction and satisfies the teacher that he or she has avoided the hazards of bias, indoctrination and heavy socialization.

Further, we operate post-Kierkegaard within a tradition that recognizes the equation of truth and subjectivity. Rights to freedom of thought and expression are not selectively assigned upon proof of reasoned argument: deep elusive motives, base instincts and palpable prejudice are equally allowable - the political literate is distinguished from the illiterate not by any greater voting power but by the quality of its exercise. For example, loyalty is a powerful if non-rational directive in an election campaign, in a strike or in relationships within a family and persons in such situations might hold views that are valid for themselves yet contrary to all objective assessments of more general interests. The objectives of education for the multi-cultural society in Britain are commonly expressed in terms of the enhancement of respect for self and of respect for others

(James and Jeffcoate 1981: 4). This dimension of individualism and the recognition of its validity have thus come to be particularly important in social and political education. In educational and political objectives, in strategies commended for the management of discussion, in the selection of contents and in the identification of leading questions, much has been derived from the post-war development of religious education, notably that of 'religious studies' as crystallized by Ninian Smart: the approach is phenomenological, not to ask what is right and what wrong with Zen and Zoroastrianism but to appreciate the cultures which they serve and engender, and to recognize the implications of creeds for the private and public lives of those who embrace them. And wherever possible it is desirable to let believers speak for themselves for theirs is 'the truth'. Most conspicuously in the development of women's studies, the estate of women has come to be defined principally in the perceptions of the subjects: no detached account, mindless of the feelings of women or of blacks, would constitute an adequate statement, at least in the present intellectual climate.

The examples of the study of women and of education for the multi-cultural society illustrate a further trend in social studies and political education at school level (that is, below age 18), exemplified still further by such enterprises as peace education, human rights education and development education. In recent years our purpose in social studies has increasingly been assigned to us in pursuit of national expedient and international agreement. Under the 1974 Paris recommendation of UNESCO, educational time is pledged for education for international understanding and co-operation and peace. Even this year, diplomatic initiatives on the nuclear issue and their seeming failure have been accompanied in Britain by a burgeoning of interest in peace education in the spirit of the UNESCO Constitution: since wars begin in the minds of men it is in the minds of men that the foundations of peace must be constructed.

The Inner London Education Authority has sponsored educational programmes designed to promote peace, reduce racism and increase the toleration of homosexuals: to these ends are deployed both the resources and energies of curriculum developers and the arts budget of the Greater London Council. In response to a campaign in schools by the National Front, a political party whose members are preoccupied with race and brandish the insignia of the Nazis, the ILEA formulated an opponent policy and carried this through by

the control of texts and special theatre and arts programmes. Never before have political purposes been so explicit in curriculum innovation. The situation in which the conduct of social studies - among other subjects - is directed towards certain officially prescribed ideological commitments contrasts with once fashionable notions of education as free intellectual development and self-fulfilment under the supervision of a teacher in the role of neutral chairperson. It is a far cry from Carlyle's plea, 'Let each become all that he is capable of being'.

3. SOCIAL STUDIES AND THE NEW TECHNOLOGY

The insurgence of the computer in the classroom, it may be observed, has not been directed to the fulfilment of objectives such as these. Rather the computer is introduced to serve other requirements, primarily those of mathematics and the natural sciences, but once installed must justify its cost.

The computing-across-the-curriculum campaign in Britain is no success story and the broad range of school subjects remains untouched. 'Computer studies', a subject in which computers are studied and practised in their own right, their languages are learnt but their wider applications across the curriculum are unexplored is an increasingly popular subject at the level of public examinations: entries rose by 18,000 in 1981 to 52,000 (O'Connor 1982) but it is an introversionist sectarian phenomenon. Teachers of mathematics constitute a majority among converts to the new technology, followed by geographers for whose increasing preoccupations with quantitative methods the computer is a welcome servant. The much noticed work of Alan Maddison (1982) also adumbrates uses in experimental science, economics, design and technology, history, English, second language learning, art, music. commercial studies, physical education, domestic studies and special education (in America, exceptional education): in each of these applications are speculated rather than reported from widespread practice. On social studies, political education, multicultural education and world studies, however, Maddison draws a blank.

In what few applications of the micro-computer to social studies and related subjects there have been, these components appear to suffer

several effects by adaptation of subject matter and objectives to the method of computer assisted learning.

First, in the very representation of social studies there are distortions in definition and omissions from the agenda. For example, we are told:

> Sociology is the study of society at all levels, implying that it is the study of people and their social relationships. Sociologists study sets of related elements organised to some social purpose. At one extreme some of them study the set of related elements organised to form a nation state; at another extreme some sociologists study the set of related elements organised to form a conversation between two people. A key idea in sociology is that of system, though it appears in many variants, and it is the idea of system which means that the use of computers in sociology can be so powerful (Allan 1981: 33).

The computer's-eye view of sociology is, to borrow words quoted in the opening paragraph of this paper, 'lopsided and inadequate'. The computer people are highly selective of sociological perspectives in order to find a place for what they regard as their contribution. Seminal though the ideas of system and organization may be, there are several concerns of contemporary sociology which Dr Allan's tendentious definition fails to make explicit: it does not allow the study of social change, for example, and it neglects the places of conflict, ideology and consciousness; it does not point us to the various functions of social disorganization, nor to socio-psychological conditions such as anomie; and ethical considerations in matters of value are usurped by decisions made on pragmatic grounds. That which is teachable by computers or comprehensible by their operators is defined as the business of the subject while that which cannot be so studied is rejected. The criterion of selection is not an educational consideration or one emanating from the epistemology of the subject but the principle of the scope for deploying the new technology. Within political education, the effect is to magnify the study of voting behaviour which can be easily quantified and by implication to give less time to political ideas, policies and personalities (Stuart 1980).

Second, there is a shift from affective to cognitive objectives. The development of attitudes and commitments which feature prominently in recent conventional specifications of social studies gives way to activities centred on information retrieval, data analysis and the testing of hypotheses. The definition of subject as data is exemplified in the writings of Roddy

Stuart who shares the awe of many that 'the computer can store and access vast amounts of data on magnetic tape or disc' (1980: 67). The trend to the cognitive is illustrated too in the leading work of Alistair Ross who has developed and practised in primary schools social studies programmes in which the children design and conduct questionnaire-interviews on such themes as adult work, code responses and test hypotheses on data collected (Ross 1982b: 7). These are enterprising programmes, not least because of the apparently high intellectual and responsible levels at which young children are enabled to operate. What is not afforded, however, is the kind of empathic understanding of individuals and social groups, of behaviour in roles and of conflicts between roles and disparate interests that is afforded by non-technological innovative methods such as theatre-in-education (Homan 1978); for it was in the world of feelings that until recently were to be found some of the most interesting departures in social studies.

Third, it would seem that data are losing their human significance and are becoming mere fodder for the new technology. Children of a London primary school find themselves working with census data not because of the intrinsic interest of demography but because the information lends itself to computerization (Ross 1982a). In a paper purporting to be written by children at a school in Co. Antrim yet another history project is reported to have been assisted by the computer and again the objects of interest are quantifiable census data:

> Our objective is to make full use of historical primary sources of information using a computerised system. The source with which we are concerned is the census return. It has the potential to be computerised because most information on the census return is sufficiently standardised and such information is available nation-wide and in many other countries (sic) for many years in which census enumerations took place. We believe that census returns are a valuable source of information for the historian. There is a great need, however, for such vast stores of information to be made readily accessible and in a form which is intelligible and so suited for detailed research if it is to be of use (Ballyclare 1981: 35).

This report, curiously, goes on to tell us nothing of historical interest: that the statistics being played with were generated in 1901 is incidental to the operation, its main apparent purpose being to legitimize the computer as an educational asset.

Fourth, there is a shift toward occupying children or students in live research, particularly in survey work that produces quantitative data and in the deployment of the experimental methods of the natural sciences in the framing and testing of hypotheses. One of the elements of social studies in the primary school, it is said, is 'a concern with the processes of understanding and evaluating evidence, of making and testing hypotheses, and recognizing the tentative nature of conclusions about how a society works' (Ross 1982b: 4).

Fifth, as previously mentioned, there is a measure in which the funds available for teaching resources within the school are pre-empted by investment in the new technology. In both national and domestic budgets, the cost of hardware has reduced the funds available for conventional resources such as film, video, books, newspapers and visits.

The expectation of the advent of computers in the classroom was officially optimistic:

> Education can be enriched by the opening up of fields into which, owing to the limitations of the human brain, we have not previously been able to penetrate very far; the use of appropriate computer programmes will enable pupils to attempt tasks they could not before (Consultative Committee on the Curriculum 1972: 9).

In social studies at least, the computer has not been an enabling or enriching innovation: sights have been blinkered, questions closed, definitions of content distorted in deference to a new technology that aspires to master rather than serve political and social science education and related subjects at school level.

4. THE COMPUTER LOBBY AND EDUCATIONAL RESEARCH

It is submitted, therefore, that the effects of the new technology are not conducive to the purposes of social science and political education. Nonetheless, the campaign to install micro-computers in schools and the pressures to have them used continue. The odds are heavily loaded in favour of the expansion of the new technology in education and it is instructive to survey the strategies deployed, for they are highly sophisticated and teachers are perhaps not competent to withstand them.

The current themes of the computer's public relations agencies are that it is misunderstood and that it is benign. In respect of the first, the computer cannot make mistakes, it is only dependent on what it is told, we are asked to believe that it has no power of its own, it is designed to complement rather than subvert time-honoured teaching methods and will liberate the teacher for greater contact with individual learners. In respect of the second, computer assisted learning has been purposively explored in certain educational assignments with a powerful emotional factor: computers help the handicapped, the blind (Gill 1982), the severely educationally sub-normal (Cutts et al. 1979), they can teach little children to cross the road and stay alive (Alexander 1983), they are useful in the training of nurses (Hicks and Hunka 1972: 4) and they reduce the perennial chore of school timetabling (Dowsland and Lim 1982). The benign character of the computer is signified by the connotations of various acronyms such as PET, APPLE, Turtle, Software and, most notable of all, 'chips', which has a special meaning for children in Britain where it is a synonym for French fries. There are endeavours to cultivate a friendly style in the language and behaviour of computers (Taylor-Byrne 1981) and exercises like the game 'Hunt the thimble' are specially developed to facilitate familiarization with new technology 'in a "fun" situation' (Jones 1982: 59).

The economic and professional dimensions of the campaign are still more independent of educational considerations. When microcomputing is commended by chief education officers as essential for 'the country's future economic effectiveness' (Harrison 1983) and inducements to purchase are made by central government, headteachers are quick to respond, if only to put their schools on the map and curry favour by subscription to current orthodoxies. Once installed, the expense of the micro-computer must be justified by extensive use. It is therefore not the case that computers stand ready to serve the Bourbons but that the Bourbons are inveigled to legitimize the presence of the computer.

Furthermore, what passes as evaluative research on the uses of the new technology is highly suspect, either because of its sponsorship or because it is confined within narrow terms of reference that are determined to preclude unfavourable assessments. The periodicals Computing Education, Computer Education, Educational Computing and Micro-scope are saturated with

case studies of successful practice, invariably reported by the practitioners themselves. No self-respecting social science journal would allow such incestuousness but here teachers and student teachers write complacently of their own practice, as though to fortify the faithful with endless testimonies. They introduce new technology to the classroom and persistently interpret the novelty factor as positive student interest. Three college students who used computers with mentally handicapped children report that 'the machines were able to hold the children's attention for longer than conventional classroom techniques' (Cutts, Hartnoll and Moody 1979); two researchers at my own institution conclude that 'broadcast telesoftware has proved valuable as an educational aid, as the regret felt by the schools in losing it (at the end of the project) has revealed' (Mapp and Raggett 1982: 35); they all demonstrate a deplorably low level of critical interpretation, the latter perceiving possessiveness as educational value.

Why, then, are educational researchers who study the uses of the new technology exempted from the standards of scientific rigour that are expected of their peers? The answer is partly one of economics and may be understood in terms of the patronage of research by agencies with interests vested in the market. The Telesoftware and Education Project which was conducted at Brighton Polytechnic as a joint enterprise of the British Broadcasting Corporation and Independent Television with equipment supplied by Mullard Ltd is a case in point. The aims of the project were to assess the potential of telesoftware in education, to create and test telesoftware programmes for schools and to evaluate the uses of telesoftware in specific curriculum contexts. The possibility of telesoftware being found to be educationally unhelpful was remote from the outset. There was, for example, no prior appreciation of the rationales of the curriculum subjects served and no facility for measuring the effects upon these, positive or negative, of the innovation of telesoftware. The broad assumptions that access to information could only be good for the purpose of teaching and that educational merit would be indicated by the satisfaction of customers, be they children or teachers, were never called into question. At the end of the project the researchers listed a number of concluding statements, principally of a technical kind, on the basis of which telesoftware was found to be proven:

> One can say...that broadcast telesoftware has been shown to be reliable, practical, attractive to users and meeting real needs. It is now up to educationalists and those in schools to decide how to use this new medium (Mapp and Raggett 1982: 50).

So it was not on the basis of educational worth but on technical merits that telesoftware was validated. Fundamental educational questions were not asked in the research that granted the medium a favourable verdict and on the basis of which telesoftware is now acclaimed as 'an important educational aid' (Yeates 1982: 3).

5. CONCLUSIONS

i. The effects of the new technology upon social science and political education are more fundamental and less enhancing than the liberation of the teacher to teach and the learner to learn. There are marked shifts in objectives and contents from affective and qualitative to cognitive and quantitative. The new technology stands to inhibit some of the positive developments in these school subjects that have been practised in recent years.

ii. The introduction of new technology across the curriculum in British schools is an initiative premised not upon educational considerations but upon economic perceptions; it is a campaign sponsored outside the world of education and market interests are dominant.

iii. What purports to be research on the educational uses of the new technology warrants close and critical attention: it lacks intellectual rigour and is seldom conducted on an independent basis or in respect of fundamental questions.

iv. Perhaps most serious of all, the new technology bears into the classroom a pedagogy which is outdated in social science education: the pretence of omniscience on the part of the microcomputer and its capacity to supply answers to questions are not steps forward in teaching and learning but steps backward.

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